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# Challenges and Suggested Remedies in Making Bhopal as a Smart City

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**ABSTRACT:** Smart city is not just a concept, it is a wave of transformation where people of particular city get all kinds of essential services like drinking water, sanitation, transport, roads, street lights, fire mitigation, including disaster management, ICT infrastructure and better solid waste management plan, so that immaculate cleanliness can be maintained by civic bodies in their respective cities. It is difficult to define smart city, but it could be said that it is the urbanization of smaller towns equipped with all the modern facilities. The day when the central government launched the smart city mission on June 2015 it came as a moment of pride for M.P government. This paper focuses on the concept of smart city and also analyses the key areas for the development of smart city. It also throws light on the challenges faced by the M.P government in making Bhopal as a smart city. The methodology adopted in this paper is the collection of data through secondary sources which includes newspaper, internet, and books. This paper highlights the suggestions to overcome the challenges in making Bhopal as a smart city.

**KEYWORDS:** Bhopal, Challenges, Government, Smart city, Suggestions.

### I. INTRODUCTION

Smart city is not just a concept, it is a wave of transformation where people of particular city get all kinds of essential services like drinking water, sanitation, transport, roads, street lights, fire mitigation, including disaster management and better solid waste management plan, so that immaculate cleanliness can be maintained by civic bodies in their respective cities. The setting up of ICT infrastructure is the main requirement to make a smart city. It is difficult to define smart city, but it could be said that it is the urbanization of smaller towns equipped with all the modern facilities. Citizen centricity is at the heart of making smart cities a reality. Urban local bodies should develop their smart city plan through rigorous analysis of citizen concern and priorities.

It is difficult to define smart city since its concept varies from country to country and in India its connotation changes from city to city.

The government of India under leadership of P.M Narendra Modi launched smart city mission on 25 June 2015. Under this mission 100 cities were covered to be developed as a smart city. Bhopal was one of the cities who qualified the criteria for the smart city mission.

The objective of the government to launch this mission was to promote sustainable and inclusive development and provide core infrastructure and to give a decent quality of life to its teeming population and also to have a clean and sustainable environment and create employment to enhance the income of all the sections of the society.

In order to achieve these objectives the government of India adopted subsequent strategy for the Smart Cities Mission such as city improvement (retrofitting), city renewal (redevelopment) and city extension (Greenfield development) plus a Pan-city initiative in which Smart Solutions are applied covering larger parts of the city.

Area-based development will transform existing areas (retrofit and redevelop), including slums, into better planned human settlements, thereby, improving livability of the whole cities. Application of Smart Solutions will enable cities to use technology to improve infrastructure and services.

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## II. REVIEW OF LITERATURE

### International Reviews

Tuba BakiciEsteveAlmirall Jonathan Wareham (2013) this paper covers the study of the city of Barcelona and intends to analyse its transformation from a tradition agglomeration to a twenty-first century metropolis. This article analysis the existing literature on Barcelona's smart city initiative with the Barcelona smart city model. It further explores the main components of the smart city strategy of Barcelona in terms of smart districts, living labs, initiatives, e-services, infrastructures and open data. This paper highlights certain benefits and challenges for such initiative and its future prospects. The outcome indicated that Barcelona has been successfully implementing the smart city strategies to become a role model for the world.

Taewoo Nam Theresa A. Pardo(2011) in the paper they discussed how to consider a particular city as a smart city, by exploring definitions of smart city and a diversity of various concept related to smart city. The strategic principles aligning to the three main dimensions (technology, people, and institutions) of smart city are covered in this paper such as integration of infrastructures and technology-mediated services, social learning for strengthening human infrastructure, and governance for institutional improvement and citizen engagement.

Alberto Vanolo (July 2013) this paper analyses the concept of the smart city in critical perspective, focusing on the power/knowledge implications for the contemporary city. The paper is mainly based on theoretical reflections and uses smart city politics in Italy as a case study. The paper analyses how the smart city discourse proposed by the European Union has been reclassified to produce new visions of the 'good city' and the role of private actors and citizens in the management of urban development.

### National Reviews

Md. FuzailJawaid, Saad A Khan (2015) in the paper has analysed that the cities are expanding due to rapid urbanization but these cities lack basic infrastructure services. Some green field development has been started in certain cities but the result is not satisfactory to cater to the demands of sustainable cities, hence there is a need to plan for green field sustainable urban development in form of smart city to bring out a balanced urban development.

Er. Jashandeep Singh Arora, Er. Navneet Singh (May-June, 2016) explains the various resources required for a city to upgrade into a smart city. According to them cities should be well planned which can provide environmental effectiveness and technological sound services for the well being of its citizens. A smart city can solve the problem of transportation, pollution, unemployment and provide business opportunities to the people.

Kuldeep Singh, Neha Sharma (2016) this paper highlights a holistic approach focusing all three pillars of a Smart City namely Infrastructure, Operations and People. Smart solutions can be beneficial in mitigating the ever increasing population in the cities. This paper focuses on the concept of smart city in the country and also concentrates on the challenges as well as the key areas for development of smart cities in India with the case study of Chandigarh. Smart Cities are the need of the hour to achieve significant progress and create a thought leadership position in the global economy.

### Justification / Purpose of the Study- Research Gap

#### Objectives of the study:

- 1) To study the concept of smart city.
- 2) To explore the challenges faced by government and the resident of Bhopal.
- 3) To suggest solutions in making Bhopal a smart city.

#### Research Methodology:

This current study has been exploratory in nature where pertinent information has been gathered from secondary sources such as websites, reports, newspapers, books etc.

#### BHOPAL CITY- A brief background:

Bhopal, the capital of Madhya Pradesh is a captivating blend of fascinating beauty, old historic city and modern urban planning. Bhopal is a city of lakes and is one of the greenest cities of India. Bhopal has witnessed major transformation in area of urban development. City is quick in adoption of latest technology which helps in making Bhopal as a smart city. In order to put Bhopal on the map of smart cities, it should be equipped with all sorts of modern infrastructure to

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make the lives of citizen better. It was also felt that smart villages should also be developed where people get better job opportunities and quality of life.

### **Challenges:**

#### **Challenges faced by citizens of Bhopal**

The various challenges faced by citizens of Bhopal were infrastructure issues, water problems, increase in crime rate, poverty, decline in greenery and cleanliness, sanitation problems, job quality, quality of hospitals, rise in pollution etc. Apart from infrastructure challenges, bureaucratic and procedural hurdles and lack of funds and investors are other challenges which the city is facing.

#### **Lack of water resources:**

In spite of upper lake, kolar dam and ground water supply the water distribution system has become insufficient as a result of increase population and municipal area over a period of last year.

#### **Lack of proper sewerage system:**

Bhopal does not have a planned and full-fledged sewerage system. A large area of the city has no sewage network, and the raw sewage or septic tank outflows are discharged into open drains which flow into the watercourses. Ultimately most of the sewage flows into the upper lake and into the nallahs.

#### **Problem of Pollution:**

In Bhopal it was seen that at places where traffic density was high the air quality of those places revealed high rate of pollution level also. Due to constant increase of traffic in the city it was suggested to take some stringent measures and impose some penalty against the polluting vehicles so as to reduce the automobile pollution in the city which may otherwise would create trouble for the residents and would rise at an alarming level. In recent years it has been seen that Bhopal city has been expanding and lot of development activities has been taking place in the city due to which there has been discharge of waste water in the upper and lower lakes of the city which again is causing serious threat to water bodies.

#### **Problem of transportation:**

Due to lack of metro structure in the city, BRTS (Bus Rapid Transit System) is the only means of transportation for the residents of the city, as a result of which the people are left with no choice except to use their own private vehicles, also due to increasing population more of vehicles has been seen in the cities due to which there has been traffic congestion in the city.

#### **Problem of security and safety:**

Due to lack of industrialisation and laxity on the part of government to create jobs many educated and qualified professionals are unemployed. Due to this, present day youth is forced to commit suicide or get involved in some nefarious activities such as kidnapping, robbery, chain snatching which in turn creates havoc in the life of normal citizen and it is dangerous for the people to survive with peace in the city.

#### **Poor parking management:**

Parking is a serious issue in the city of Bhopal and its management needs topmost priority. Parking demand is very high in the commercial areas. Due to absence of adequate off street parking facilities, parkers are forced to park their vehicles on the streets which in turn reduces the effectiveness of road. In Bhopal the inner city area has been facing problem of narrow streets and such streets has been encroached by parking area.

#### **Challenges faced by the government of Bhopal**

The Bhopal government while designing the plan for smart city initially selected the posh localities of Shivajinagar and Tulsinagar which are densely covered green belts. A large number of local residents and retired bureaucrats were unwilling to handover it to Bhopal municipal corporation because the area was already developed, it's in the vicinity of

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government offices, secretariat and main commercial market and also it has one of the most dense plantations in the capital.

The appeal from the opposition was to allocate underdeveloped area for the project of smart city. As a mark of protest public took out a silent march and began the second most famous “chipko andolan” by hugging trees to save the greenery. The result of this andolan was that the location of smart city project was shifted from Shivaji and Tulsinagar to Tathya Topenagar. In that around 80% of North TT Nagar and only 20% of South TT Nagar have been chosen to be developed as smart city.

The problem of the government has not been solved over yet because when the Bhopal development authority asked the residents of South TT Nagar to vacate their houses, the residents of South TT Nagar demanded, first there has to be development of North TT Nagar region, the construction of houses has to be completed their first and then the people of South TT Nagar should be asked to vacate their houses. For this the people along with the opposition leaders, government employees, slum dwellers, social organisation has declared to start a “signature campaign” from 26<sup>th</sup> March 2017.

Another challenge faced by M.P government is lack of funds. Money acts as a constraint since central government has allocated limited amount of funds for the project and due to scarcity of funds, money is withdrawn from various yojanas of the MP government.

### III. PROPOSALS

Bhopal plus Smart City App has been launched to provide information about the decision and policies of the project in one click and people can also suggest solutions through this app.

Bhopal Municipal Corporation has come up with supervisory control and data acquisition technology that will provide alerts on water outage. It is designed specifically for municipal application such as water, waste water and sewage. It uses ultrasonic, electromagnetic and pressure gadgets to gauge flow, contamination, leaks and illegal tapping. Data can be stored for 5 years. It will be integrated with smart city app “Bhopal Plus”.

"We are set to initiate pan-city proposals that will be the stepping stone to make Bhopal a smart city. Fast-track projects focusing PAN city development would be initiated first by Bhopal Smart City Development Corporation Limited (BSCDCL)," said BSCDCL CEO and BMC additional commissioner Chandramauli Shukla.

Overall, pan-city initiatives are pegged at Rs 2,000 crore under smart city development. A big chunk of pan-city development will be funded through investment in smart city development at North TT Nagar.

Area-based development (ABD) based on Bhopal Development Authority (BDA) plan for re-densification of TT Nagar will be submitted to the Union government 'when asked for', said an urban development official.

#### **Suggested solutions in making Bhopal a smart city:**

Intelligent government service has emerged as the key feature in making Bhopal a smart city followed by IT connectivity. Through intelligent government services, the citizens of Bhopal want easy interaction between government and citizens through online service and from IT connectivity, the citizens expect robust internet network with high speed connectivity to all offices and houses. Citizens want 24\*7 clean water supply, more job opportunities, good transport facility, involvement of citizens in making plans for city and education facility, 24 hour electricity to make Bhopal a smart city.

As a way forward, Bhopal should transform itself into a tourist destination that will lead to increase in job opportunities in tourism sector. Apart from this other suggestive remedies are as follows:

**Proper drainage system:** The most important need is to have a proper underground drainage system. The drainage should be cleaned at regular intervals. Solid waste management is good but need to be done before peak hours. Solid waste should be separated and used as manure. The liquids out of that waste should be used for watering road side plants and grass. Good waste management is built on 3 pillars-reduce, reuse and recycle. Together they contribute to create a healthy environment for everyone.

**Roads:** The roads should be double lane. 3 tier system has to be there –

- 1) Main roads- The side of the main roads should be properly tiled. Grass should be properly maintained.
- 2) Dividers must be properly illuminated by phosphorescent light paint.

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- 3) Beyond grass, there has to be lane for bicycle.
- 4) Proper road signs must be there which must be illuminated at night.
- 5) Zebra crossings must be properly made.
- 6) Parking of vehicles must be at designated places only.
- 7) The road lights must be illuminated.
- 8) All these roads must be under the camera surveillance.

**Parks and Public places:** These should be properly maintained by using following steps:

- 1) Dust bins should be placed at regular intervals.
- 2) The benches which are there in parks and public places should be cleaned at regular intervals.
- 3) More and more trees and flowers should be planted near such places.
- 4) These places should be under security camera surveillance.
- 5) Wash rooms should be there near such places.
- 6) Canteens need to be set up along with it some souvenir shops should also be established where people could buy souvenir depicting Bhopal.

The public places in Bhopal which needs re-development like Birla temple, masjid, shauryasmarak etc.

**Markets:** Markets should be free from encroachments of shopkeepers. Pavements should be wide and illuminated. Parking should be at designated spot only. There is a high need for a washroom to be there in every market with all amenities. The markets should be under surveillance of camera. There has to be armed guards with tight vigilance.

**Washrooms:** Every 3 km must have a washroom. Washroom should have a beautifully glazed tiles and automatic sensors for cleaning. Attendees have to be there for 24 hours. Nominal rates could be charged for using the toilets. Dustbins have to be placed at regular intervals. The waste should be concealed and cleaned on regular basis. Hand wash sanitizers and paper napkins should be provided.

**Traffic:** There is a grave violation of traffic rules in the city. In order to be a smart city problem of traffic needs to be addressed and following steps need to be taken like-

- 1) There has to be policing on all major squares.
- 2) Police should be properly armed and should be given motorcycles and placed on each busy squares to grab a traffic violator.
- 3) Working sensitive night vision cameras should be installed on all the squares.
- 4) No traffic horns should be used except for emergency, police and ambulances.
- 5) Over-speeding should be a grave violation.
- 6) Pressure horns used in school, college buses and trucks must be mostly banned.

**Civic Rules:** Under the civic rules, following steps has been suggested-

- 1) Littering must be heavily fined say up to Rs 1000.
- 2) Spitting or smoking in public places should be banned.

**Bhopal Railway station:** Railway station should be neat and clean. When people come from outside they feel that they have entered in an unhealthy environment after seeing the main station. So provisions has to be made in order to make it clean.

Another step would be to make Bhopal as a free WI-FI city and to declare Bhopal as Plastic free, Noise free, Hoarding free city and also to declare Bhopal as Green city of lakes and mountains.

## IV. CONCLUSION

The smart city is such a concept which is deemed to be the solution for the present day problems as well as the sustainable future. Due to development issues in rural areas, people are migrating towards Bhopal in search of jobs, education and other facilities as a result Bhopal is bulging in its size more and more houses are built on agricultural land. Need of the hour is to transform Bhopal city into smart city to avoid problem of unemployment, pollution, transportation etc. Smart cities can lead to sustainable development of the society. Participation of both government and people is required to make a smart city.

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